

Chapter 4, lesson 48, Base material setup

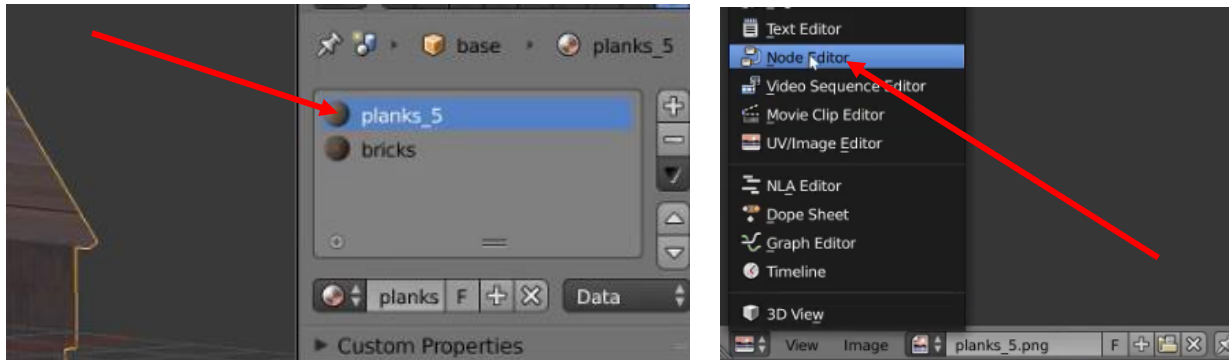
In this chapter we look on how we can move from our textures that we have setup to full materials.

Chapter 4, lesson 48, Base material setup

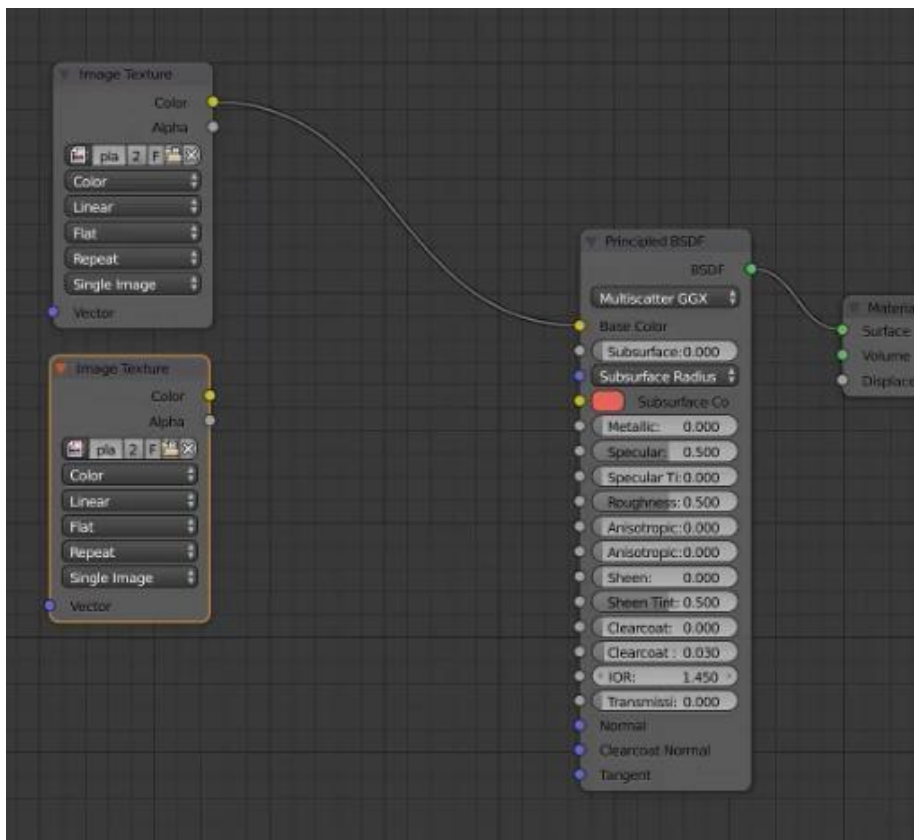
Right now, it looks like our building could have been built yesterday. It's time to grunge it up a bit and we will have good use of what we learned in chapter 3.

In this lecture we are going to have a look on how we can improve the material of our building. We will do this by mixing in another wood texture above our already added one to create variation in the wood. After that we will add some dirt at the top and bottom of the planks to add some realism.

We will start by selecting our planks_5 material in the properties panel. Then change the UV-image editor to a node editor.



As a reminder we can use the same shortcuts in the node editor as in the 3d viewport. For example, we can delete a node by selecting it and hitting "X". We can add new nodes by using the add nodes menu. Shortcut for this is "**shift+A**". With this reminder remove the Diffuse shader and add a principled shader. Drag the output of the Image texture to the color input of the principled shader and the output of the principled shader to the Surface input of the material output node. Then duplicate the image texture node.



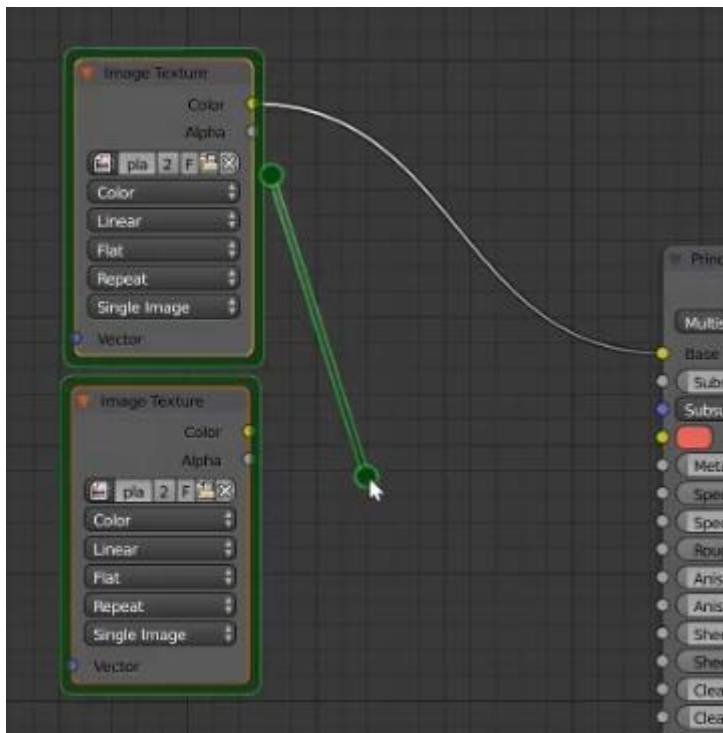
Now we are going to use an addon called the node wrangler. This addon is designed to speed up the workflow inside the node editor and it is bundled with Blender by default. However, it is not enabled by default. To enable node wrangler, go to the file menu and open user preferences. Here switch over to addons and in the search bar type “wrangler” This will give us one entry in the addon list. Check the box on the add-on entry to enable it, save changes and close the window.



This add-on enables us to use a range of different shortcuts in the node editor. A fuller list of the add-on's features can be found in this URL.

<http://gregzaal.github.io/node-wrangler/>

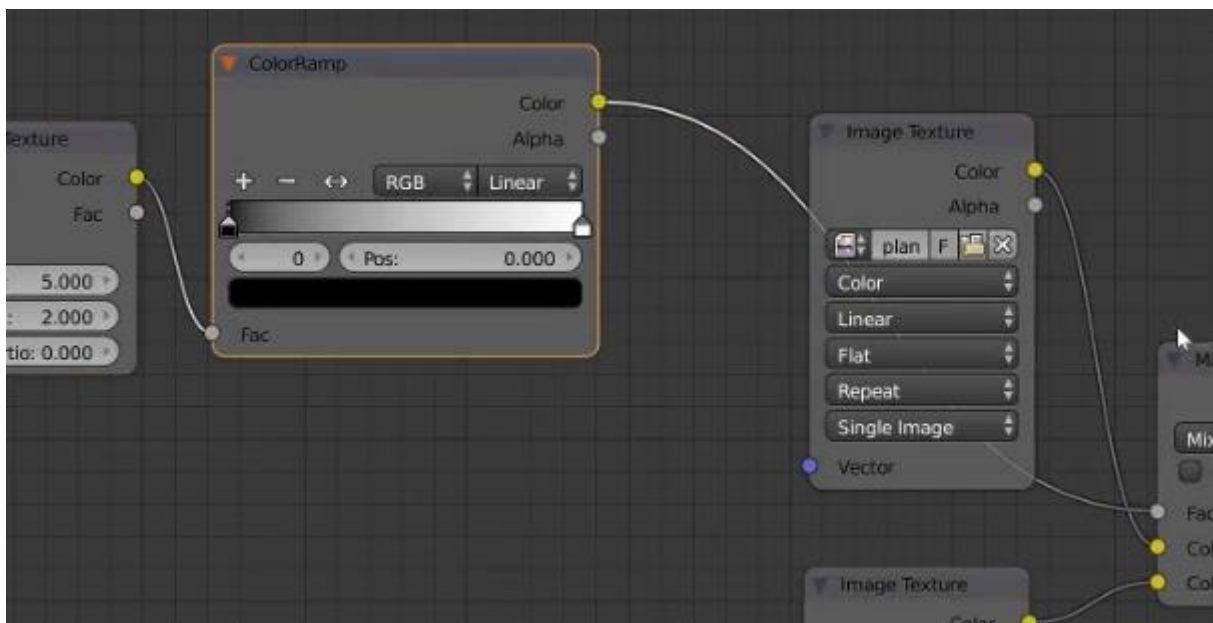
For now, we will use a feature to easily mix our two image textures together. Hold “**alt**” and drag from the top image texture node to the bottom so that they both get a green outline. Release to add a mixrgb node between them. In this way we don't have to manually create all the connections.



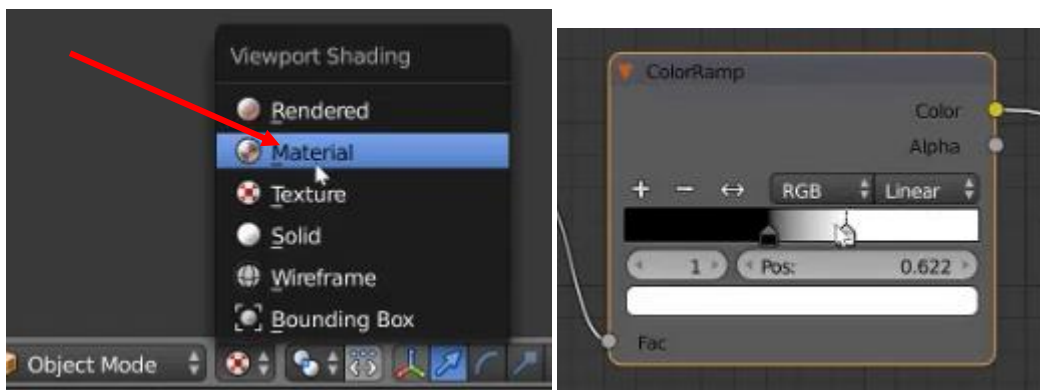
Now change the texture image that the lower image texture node is using by clicking its folder icon. Browse to the texture that you want. In the video the texture called planks_7.png is used. This texture is also bundled with the course.



From here we will mix these two textures together. We will start by adding a color ramp node to the node editor as well as a noise texture. Connect the noise texture to the input of the color ramp and the output of the color ramp to the grayscale factor input of the mixrgb node.



To preview what we have so far, we will use the material shading in the 3d viewport.



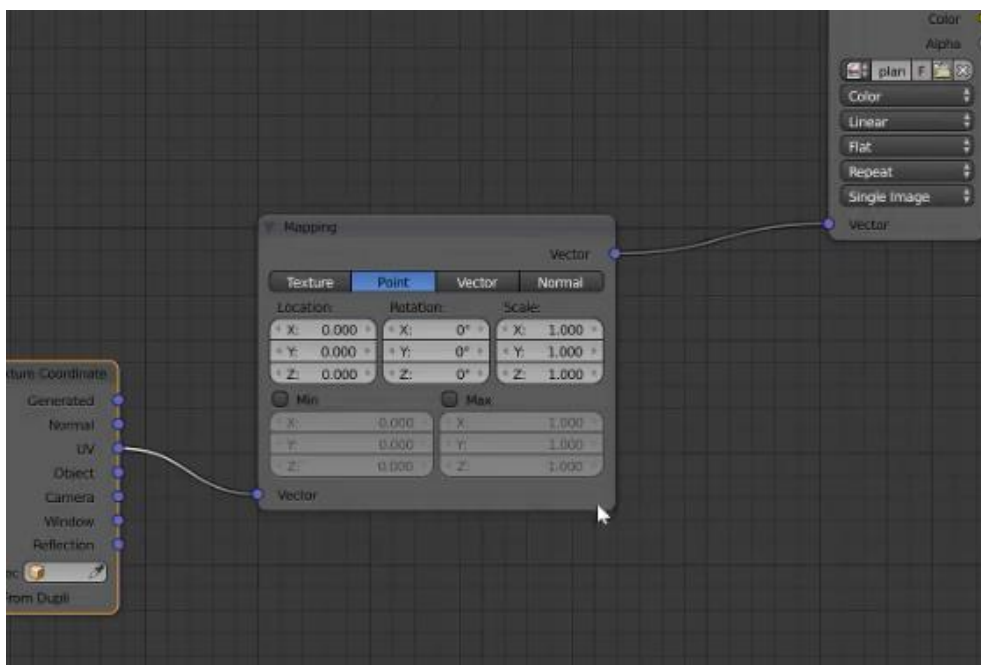
From here we will then adjust the color ramp to add more contrast to our noise texture that we are using as a mask to mix between our two wood textures. The result should look something like this.



To adjust the spreading of the planks_7 texture we will change the scale of the noise texture to 3 and detail to 5. From here go ahead and adjust the color ramp to your liking. Keep in mind that these kinds of effects to the material should be quite subtle. We don't want the building to look unrealistically dirty. Use the reference and look for the size of areas as well as the distribution of those areas that are dirty or has a change in color in some way.

The two textures that we have are slightly different in size. Therefore, our planks do not align very well right now. To fix this we will add a texture coordinate node and a mapping node so that we can adjust the size of the texture map for our planks_7.

In the node editor add a node called mapping in front of the planks_7 image texture as well as a texture coordinate node right before the mapping node so that it looks like this.

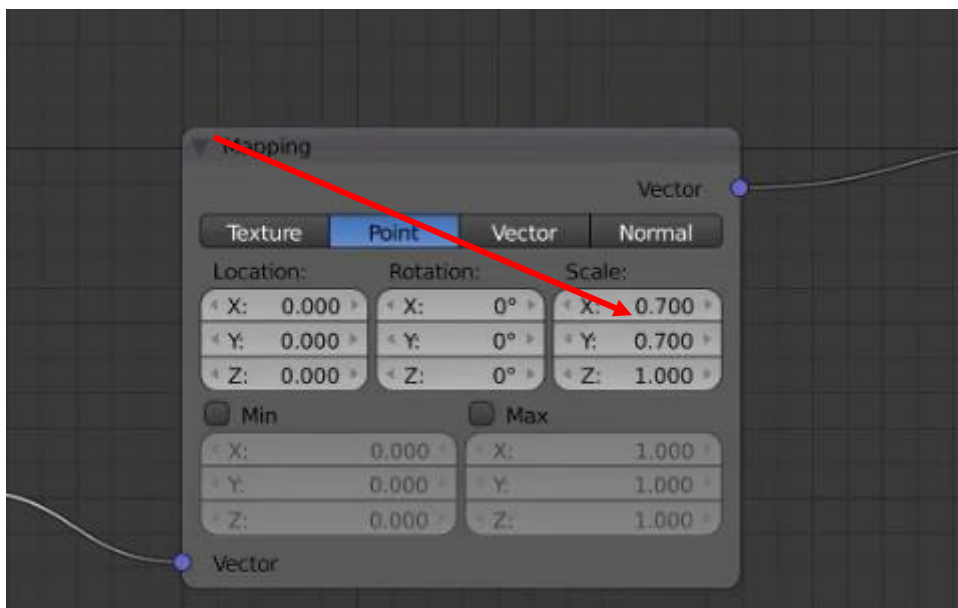


The Texture coordinate node is a very useful node. By default, Blender gives us the UV input from this node to the image texture node. So, if we don't plug anything into the image texture the result will be the same as we have right now. The reason for adding these nodes is so that we can change the mapping of our UV-map with the mapping node, independently from how the UV-coordinates are mapped for our planks_5 texture. Now we can adjust the UV-map in one image texture without affecting the other.

You might think that well, then I will just add the mapping node and skip the texture coordinate but that won't work. You see then we would send whatever output the mapping node has for us into the image texture, but the mapping node has nothing, effectively erasing the UV-map input we had from the start. Therefore, we need to tell the mapping node what coordinates will be used to feed the mapping node that will in turn feed the image texture.

When it comes to image textures I dare to say that the UV-coordinates is probably used in 95% of the cases. So, this is a quite common setup to have control over the UV-map without changing the UV-map. The node wrangler addon has a quick shortcut for adding these nodes. Select the texture node and hit "**ctrl+t**".

Now in this lecture we are going to change the scale of the mapping node to 0.7 on the x and y.



When using UV-coordinates and image textures we only deal with X and Y. Z is used for depth, but our image textures don't have depth. This is mainly used for the procedural textures like Noise, Voronoi, and Musgrave texture. They are all 3Dimensional.

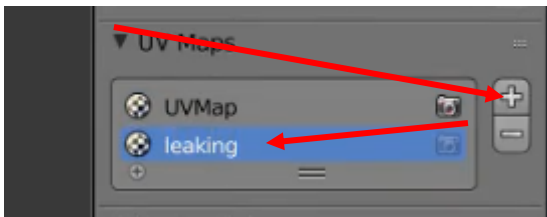
Talking about the Musgrave texture. If you want to try another kind of noise texture a good way is to use the Musgrave. Try changing the noise texture that we use for the mask to a Musgrave and set the Detail value to 16, Dimension to 0.5 and Lacunarity to 1.6 and you get a pretty cool alternative pattern to work with a lot of detail in the edges between light and dark.

Leaking effect

Now we will try a different approach when it comes to mixing textures. We will mix in some leaking streaks at the bottom of the wood as well as along the top in some places. To do this go into the mesh data in the properties panel.

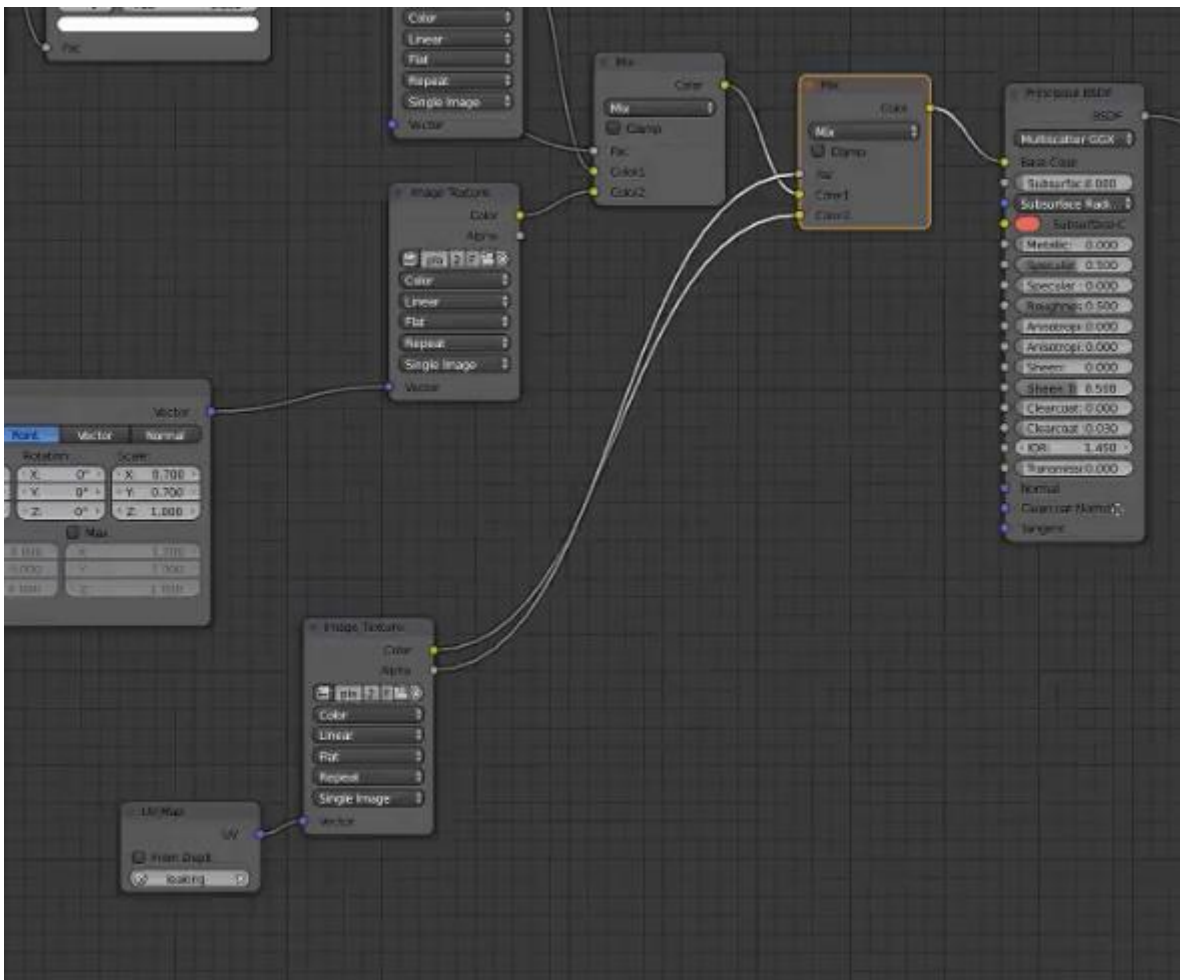


From here we hit the plus sign next to the list of UV maps to add another one. Name this new one “leaking”.



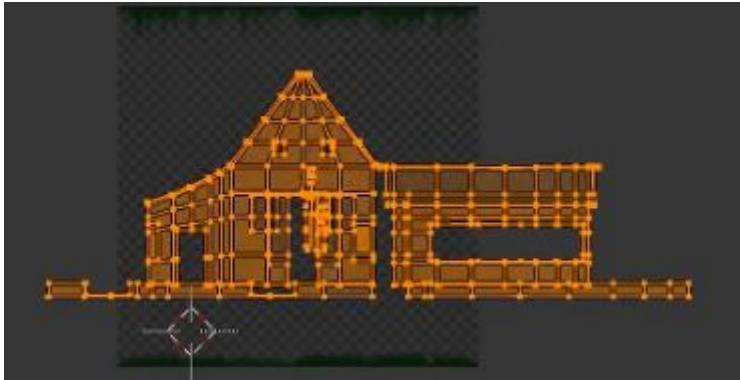
From here we will add three more nodes to our node tree. Start by duplicating one of the image texture nodes. Then add a “UV-map” node in front of it and connect them up so that the output of the UV-map goes into the normal input of the image texture. Select the “leaking” UV-map for the UV-Map node.

When this is done duplicate the Mixrgb node connecting the two wood textures together and place it between the old mixrgb and the principled shader so that the old mixrgbs output goes in the input of the second mix node. Then connect the color of the image texture to the second color slot and the alpha to the factor of the mixrgb node. The final setup should look like this.

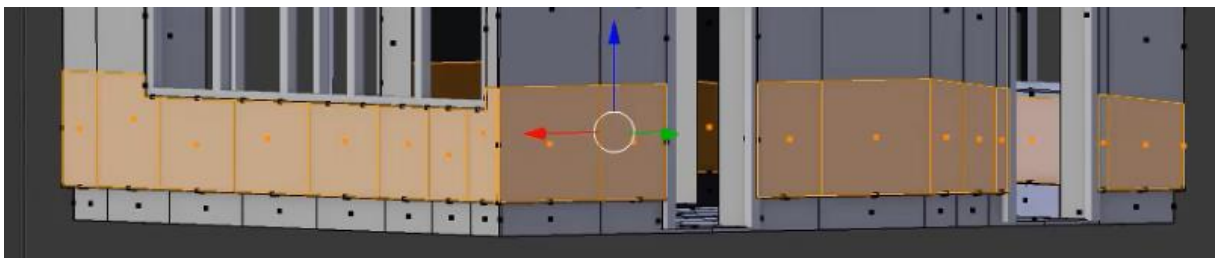


Now change the image in the image texture node to the leaking texture. Click the folder icon and browse for the “leaking_top_bottom.png” that comes with the course.

From here go into the UV/Image editor and select the whole building. Make sure that you have the leaking UV-map selected in the mesh data tab in the properties panel so that we change the correct UV-map. Scale all the UV-coordinates down so that they fit between the leaking streaks.



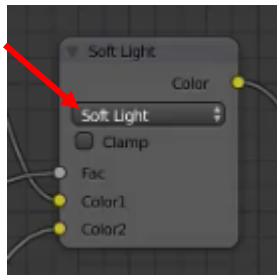
Now go in and select the bottom faces of the wood and we will scale them and position them on the UV-map.



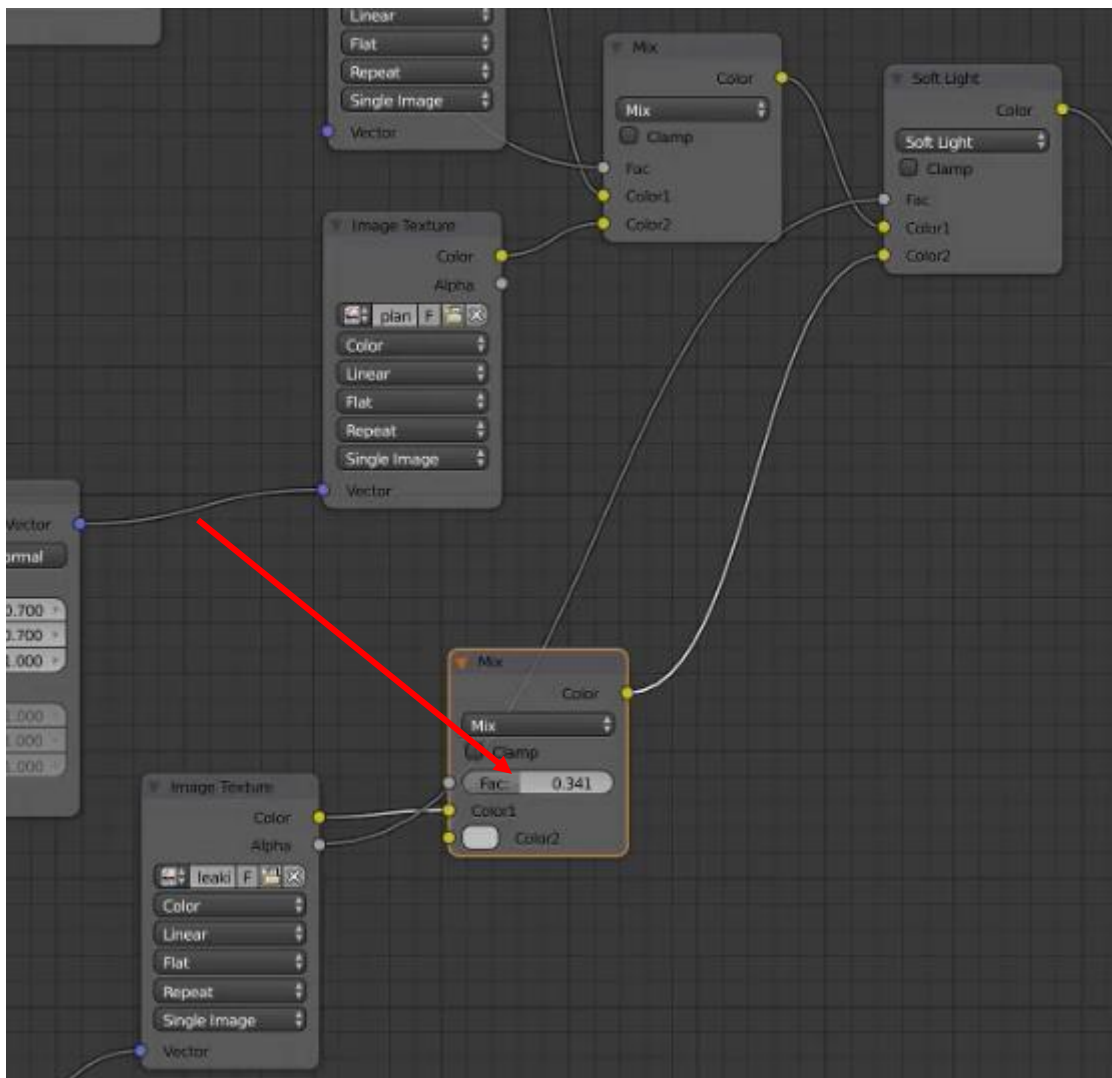
If you select material shading for the 3D viewport you should be able to see the leaking effect. For now, don't worry about the bricks looking different in this view. This is because our leaking UV-map is selected but for rendering the UV-map with the camera icon will be used if we don't override this like we did with the UV-map node for the leaking effect. The selected UV-map only changes in the viewport how the map would be applied if the selected UV-map was the rendering UV-map. Think of it as a preview.



The leaking effect is quite strong, and it needs to be adjusted but right now we don't have that control. To gain that control we will have to go back to the node editor and add another node that will give us the control. Before we add this new node however we can also try to change the Blending mode for the leaking. This is changed in the mixrgb node and it dictates what math is used to blend the textures. For instance, try "Soft light" as we do in the video.



As well as this, we will now add another mixrgb node between the color input and output if the leaking texture and the mixrgb set to “soft light”. Now drag the slider of the new Mix node so that it becomes a subtler effect.



This is the result we end up with.

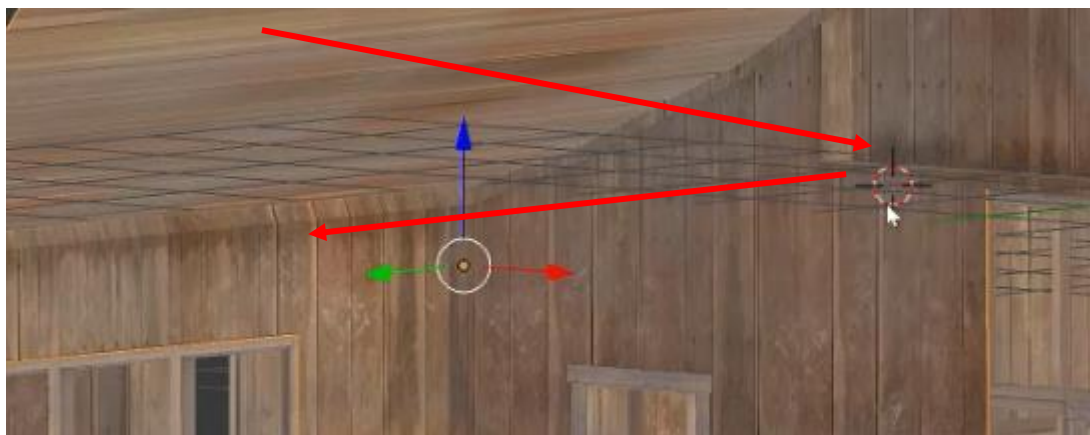


Now we have the dirt that we need so we can go around and change the leaking UV-map on other areas of the building. Make sure to not change the original UV-map or you will have issues with the other textures.

Here we continue with the topside.



We do the same on some other places on the building.



You can continue playing with the settings in the node editor if you are not happy with the blending yet. We have covered a lot in this lecture but it's now at its end.